

SN 09/866938

PATENT

A9
IDS
10803
WJ**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Wendell P. Noble Jr. et al. Examiner: Jack Chen
Serial No.: 09/866938 Group Art Unit: 2813
Filed: May 29, 2001 Docket: 303.330US3
Title: ULTRA HIGH DENSITY FLASH MEMORY

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 19-0743.

Concise Explanations of Relevance

In accordance with 37 CFR 1.98(a)(3), Applicants submit, below, a concise explanation of relevance for the single, non-English reference. Further, Applicants submit additional general statements of relevance for the remaining U.S. Patents that are included on the attached 1449 Form, even though these general statements are not required.

08/04/2003 BLANCO 00000019 09866938

01 FC:1805

180.00 OP

Foreign Patent Document

Foreign Document No	Name of Patentee or Applicant of cited Document	Concise Explanation of Relevance
JP-63-066963	Minegishi, K.	Capacitor formed in lattice-like grooves in a semiconductor substrate

US Patent Documents

USP Document Number	Name of Patentee or Applicant of cited Document	Concise Explanation of Relevance
US-4,673,962	Chatterjee, et al.	Trench transistor.
US-4,920,065	Chin, Daeje, et al.	Trench transistor.
US-5,006,909	Kosa, Yasunobu	Semiconductor device with pillar-shaped portion.
US-5,017,504	Nishimura, et al.	Trench transistor.

RECEIVED
AUG - 5 2003
TECHNOLOGY CENTER 2800



SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Serial No :09/866938

Filing Date: May 29, 2001

Title: ULTRA HIGH DENSITY FLASH MEMORY

Page 2

Dkt: 303.330US3

US-5,021,355	Dhong, , et al.	Trench transistor.
US-5,057,896	Gotou, H.	Semiconductor device with pillar-shaped portion.
US-5,072,269	Hieda, Katsuhiko	Semiconductor device with pillar-shaped portion.
US-5,177,576	Kimura, Shinichiro, et al.	Semiconductor device with pillar-shaped portion.
US-5,396,093	Lu, C.	Vertical DRAM cell.
US-5,414,287	Hong, G.	Semiconductor device with silicon islands.
US-5,432,739	Pein, Howard B.	Semiconductor device with pillar-shaped portion.
US-5,451,538	Fitch, J.T. , et al.	Trench transistor.
US-5,460,988	Hong, Gary	Semiconductor device with silicon islands.
US-5,483,094	Sharma, U. , et al.	Semiconductor device with pillar-shaped portion.
US-5,495,441	Hong, G.	Trench transistor.
US-5,519,236	Ozaki, Tohru	Semiconductor device with silicon columns.
US-5,563,083	Pein, Howard B.	Semiconductor device with pillar-shaped portion.
US-5,691,230	Forbes, L.	Semiconductor device with silicon islands.
US-5,874,760	Burns Jr., S. M., et al.	Semiconductor device with pillar-shaped portion.
US-5,879,971	Witek, K.	RAM cell with trench regions.
US-5,909,618	Forbes, L. , et al.	Same inventive entity. Semiconductor device with pillar-shaped portion.
US-5,914,511	Noble, W. P., et al.	Same inventive entity. Semiconductor device with pillar-shaped portion.
US-5,933,717	Hause, Frederick N., et al.	Trench transistor.
US-5,943,267	Sekariapuram, S. , et al.	Trench memory cell.
US-6,072,209	Noble, Wendell P., et al.	Same inventive entity. Semiconductor device with pillar-shaped portion.
US-6,172,391	Goebel, Bernd	Semiconductor structure with trenches.
US-6,208,164	Noble, W. P., et al.	Same inventive entity. Semiconductor device with pillar-shaped portion.

Other Non-Patent Documents

Include name of the author (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Concise Explanation of Relevance
PEIN, H. , et al., "A 3-D Sidewall Flash EPROM Cell and Memory Array", <u>IEEE Transactions on Electron Devices</u> , 40, (Nov. 1993),2126-2127	Semiconductor device with pillar-shaped portion.
PEIN, H. , et al., "Performance of the 3-D PENCIL Flash EPROM Cell	Semiconductor device with pillar-shaped portion.

RECEIVED
AUG - 5 2003
TECHNOLOGY CENTER 2800



SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Patent No : 09/866938

Filing Date: May 29, 2001

Title: ULTRA HIGH DENSITY FLASH MEMORY

Page 3

Dkt: 303.330US3

Include name of the author (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Concise Explanation of Relevance
and Memory Array", <u>IEEE Transactions on Electron Devices</u> , 42, (November, 1995), 1982-1991	
PEIN, H. B., et al., "Performance of the 3-D Sidewall Flash EPROM Cell", <u>IEEE International Electron Devices Meeting, Technical Digest</u> , (1993), 11-14	Semiconductor device with pillar-shaped portion.
TAKATO, H. , et al., "High Performance CMOS Surrounding Gate Transistor (SGT) for Ultra High Density LSIs", <u>IEEE International Electron Devices Meeting, Technical Digest</u> , (1988), 222-225	Semiconductor device with pillar-shaped portion.

RECEIVED
AUG - 5 2003
TECHNOLOGY CENTER 2800

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Serial No :09/866938

Filing Date: May 29, 2001

Title: ULTRA HIGH DENSITY FLASH MEMORY

Page 4

Dkt: 303.330US3

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

WENDELL P. NOBLE JR. ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

P.O. Box 2938

Minneapolis, MN 55402

(612) 373-6904

Date

July 31, 2003

By

Daniel J. Kluth
Daniel J. Kluth

Reg. No. 32,146

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O.Box 1450, Alexandria, VA 22313-1450, on this 31st day of July, 2003.

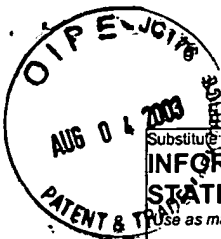
Name

Amy Moriarty

Signature

[Signature]

RECEIVED
AUG - 5 2003
TECHNOLOGY CENTER 2800



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO
**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Use as many sheets as necessary)

<i>Complete if Known</i>	
Application Number	09/866938
Filing Date	May 29, 2001
First Named Inventor	Noble Jr., Wendell
Group Art Unit	2813
Examiner Name	Chen, Jack

Sheet 1 of 2

Attorney Docket No: 303.330US3

RECEIVED
AUG - 5 - 2003
TECHNOLOGY CENTER 2800

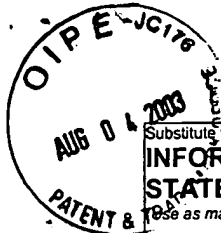
US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
	US-4,673,962	06/16/1987	Chatterjee, P. K., et al.	357	23.6	03/21/1985
	US-4,920,065	04/24/1990	Chin, Daeje , et al.	437	52	10/27/1989
	US-5,006,909	04/09/1991	Kosa, Yasunobu	357	23.6	10/30/1989
	US-5,017,504	05/21/1991	Nishimura, , et al.	437	40	04/21/1989
	US-5,021,355	06/04/1991	Dhong, , et al.	437	35	05/18/1990
	US-5,057,896	10/01/1991	Gotou, H.	357	49	05/30/1989
	US-5,072,269	12/10/1991	Hieda, Katsuhiko	357	23.6	03/15/1989
	US-5,177,576	01/05/1993	Kimura, Shinichiro, et al.	257	71	05/06/1991
	US-5,396,093	03/07/1995	Lu, C.	257	306	08/12/1994
	US-5,414,287	05/09/1995	Hong, G.	257	316	04/25/1994
	US-5,432,739	07/11/1995	Pein, Howard B.	365	185	06/17/1994
	US-5,451,538	09/19/1995	Fitch, J.T. , et al.	487	60	04/20/1994
	US-5,460,988	10/24/1995	Hong, Gary	437	43	04/25/1994
	US-5,483,094	01/09/1996	Sharma, U. , et al.	257	316	09/26/1994
	US-5,495,441	02/27/1996	Hong, G.	365	185.01	05/18/1994
	US-5,519,236	05/21/1996	Ozaki, Tohru	257	302	06/27/1994
	US-5,563,083	10/08/1996	Pein, Howard B.	437	43	04/21/1995
	US-5,691,230	11/25/1997	Forbes, L.	437	62	09/04/1996
	US-5,874,760	02/23/1999	Burns Jr., S. M., et al.	257	315	01/22/1997
	US-5,879,971	03/09/1999	Witek, K.	438	238	09/28/1995
	US-5,909,618	06/01/1999	Forbes, L. , et al.	438	242	07/08/1997
	US-5,914,511	06/22/1999	Noble, W. P., et al.	257	302	10/06/1997
	US-5,933,717	08/03/1999	Hause, Frederick N., et al.	438	200	03/04/1997
	US-5,943,267	08/24/1999	Sekariapuram, S. , et al.	365	185.28	06/12/1998
	US-6,072,209	06/06/2000	Noble, Wendell P., et al.	257	296	07/08/1997
	US-6,172,391	01/09/2001	Goebel, Bernd	257	305	08/27/1998
	US-6,208,164	03/27/2001	Noble, W. P., et al.	326	41	08/04/1998

EXAMINER

DATE CONSIDERED

Substitute Disclosure Statement Form (PTO-1448)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

<i>Complete if Known</i>	
Applicant Number	09/866938
Filing Date	May 29, 2001
First Named Inventor	Noble Jr., Wendell
Group Art Unit	2813
Examiner Name	Chen, Jack

Sheet 2 of 2

Attorney Docket No: 303.330US3

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²
	JP-63-066963	03/25/1988	Minegishi, K.	HO1 L	27/10	

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		PEIN, H. , et al., "A 3-D Sidewall Flash EPROM Cell and Memory Array", <u>IEEE Transactions on Electron Devices</u> , 40, (Nov. 1993),2126-2127	
		PEIN, H. , et al., "Performance of the 3-D PENCIL Flash EPROM Cell and Memory Array", <u>IEEE Transactions on Electron Devices</u> , 42, (November, 1995),1982-1991	
		PEIN, H. B., et al., "Performance of the 3-D Sidewall Flash EPROM Cell", <u>IEEE International Electron Devices Meeting, Technical Digest</u> , (1993),11-14	
		TAKATO, H. , et al., "High Performance CMOS Surrounding Gate Transistor (SGT) for Ultra High Density LSIs", <u>IEEE International Electron Devices Meeting, Technical Digest</u> , (1988),222-225	

RECEIVED
AUG - 5 2003
TECHNOLOGY CENTER 2800

EXAMINER

DATE CONSIDERED

2813

Applicant: Wendell P. Noble Jr. et al.

Title: ULTRA HIGH DENSITY FLASH MEMORY

Docket No.: 303.330US3

Filed: May 29, 2001

Examiner: Jack Chen

Commissioner for Patents

P.O.Box 1450

Alexandria, VA 22313-1450



Serial No.: 09/866938

Due Date: N/A

Group Art Unit: 2813

We are transmitting herewith the following attached items (as indicated with an "X"):

- ☒ A return postcard.
- ☒ An Supplemental Information Disclosure Statement (4 pgs.), Form 1449 (2 pgs.), and copies of 32 cited documents.
- ☒ A check in the amount of \$180.00 to cover the fee for consideration of Information Disclosure Statement under 97(c).

Please consider this a **PETITION FOR EXTENSION OF TIME** for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

P.O. Box 2938, Minneapolis, MN 55402 (612-373-6900)

By: Daniel J. Kluth
Atty: Daniel J. Kluth
Reg. No. 32,146

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, P.O.Box 1450, Alexandria, VA 22313-1450, on this 31st day of July, 2003.

Amy Moriar
Name

[Signature]
Signature

Customer Number 21186

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
(GENERAL)

P.O. Box 2938, Minneapolis, MN 55402 (612-373-6900)

RECEIVED
AUG - 5 2003
TECHNOLOGY CENTER 2800